Johnny M Mine Background Activities

The Johnny M Mine was an underground uranium mine located in McKinley County, New Mexico. The former mine is located in section 7 and the east of section 18, Township 13 N, Range 8W. The latitude is 35.361959 N, and the longitude is-107.721956 W. The ore bearing zone zones were between 1300 and 1400 feet below the ground surface. This uranium ore was mined from the Poison Canyon tongue of the Brushy Basin member. This ore is in the Jurassic Morrison Formation. The mine was accessed by the haul road, which passes through the west ½ section 18, T13N, R8W.

The mine produced uranium ore from 1972-1982, by Ranchers Exploration and Development Corporation. This company was located in Albuquerque, New Mexico. Ranchers was later merged with Hecla Mining Company in 1984. Hecla is located in Couer d'Alene, Idaho. Approximately 2 million pounds of uranium oxide (U_3O_8) was produced from the mine. The minerals were leased by Cerriillos Land Company to Ranchers. (section 7, section 18?)

The ore horizon was initially saturated with water. Ranchers dewatered this zone so that it could be mined. This zone did not re-saturate . However, the Cretaceous Dakota Sandstone, which is vertically above the Poison Canyon, was leaking water into the mine shaft. The two zones are separated by a thick shale thickness.(approximately 80 feet)

Water from the mine was pumped into settling ponds on the property. The ponds were approximately 100 feet by 200 feet by 15 feet deep each. These ponds were probably unlined. (?) This water was then discharged by an open ditch about 1 mile in length to San Mateo Creek. The amount of water discharged to these ponds was about 1,000, 000 gallons per day. This open ditch was replaced by 12 inch concrete pipe.

A request was made by Ranchers to the New Mexico Environment Improvement Division(NMEID) in 1977 to place uranium mill tailings from the Kerr McGee (now Rio Algom formerly Quivira Mining Company)Uranium Mill located in Ambrosia Lake in the Johnny M Mine to protect the Dakota Sandstone from contamination and to prevent the mine from being flooded out. The mill tailings were trucked from Ambrosia Lake at a rate of 8, 000 tons per month. A total of approximately 286,000 tons of this material was delivered to the Johnny M Mine site. The backfilling operations occurred for 5 years. (August 1977-January 1982)The mill tailings were mixed with water from the mine and the slurried into the mine at two locations. The north vent bore hole and the south vent bore hole were the entry points where these slurried tailings were injected. (50% solids by weight) A license was issued by NMEID in February 1978 for the disposal of these mill tailings.(NM-RED-MB-00) This was described as an innovative method in the NMEID correspondence. There were fourteen license amendments issued by NMEID between 1978 and 1984 to Ranchers or Hecla. The mill tailings were described as " Particle size ranges from 75-500 micron, or 200-38 mesh. The material has various constituents but consist mainly SiO2. There are minor amounts present of Al, Fe, Ca, Mg, Na, K, Ni, Mo, Zn, U, and V. The sand will range

from 26-100 pCi/gm(dry) of Ra-226 and 0.005-0.01% of U3O8. The Th content is about 600 pCi/gm. "(Hecla letter Gary Gamble to NRC Ramon Hall dated March 3, 1992 this information was also included a New Mexico Radiation License dated June 17, 1977)

A notice to terminate the operations was sent to the NMEID (Groundwater Division and Radiation Protection Bureau) in 1981 by Ranchers. A cleanup plan was sent to NMEID by Ranchers to address the clean up of the two one acre plots around the north vent bore hole and the south vent bore hole. The cleanup consisted of scraping and covering material.

Numerous attempts were made by Ranchers to cleanup the site. They do not appear to be successful. Ranchers issued a termination report to NMEID dated August 23, 1983. NMEID recommended license termination after reseeding/vegetation dated January 3, 1984. (The NMEID gave up trying to get the site cleaned up.)

Hecla became the operator of the former mine in 1984. Additional sampling was conducted by Hecla and EID in 1986 or 1985. These results were reviewed by Hecla and EID. There was disagreement by both parties as to the results of this sampling.

Hecla submitted "A Work Plan for Site Surveys and Cleanup" with respect to the Johnny M Mine , which is located in McKinley County, New Mexico to the Nuclear Regulatory Commission (NRC)dated October 16, 1987. We have a copy of this report.

An upgraded Source Material License SUA-1482 was issued to Hecla Mining Company by NRC dated January 7, 1988. This license required the company to conduct pre-cleanup survey and submit a cleanup plan.

Hecla submitted "Site Survey and Soil Testing Report for the Johnny M Mine" to the NRC dated July 1, 1988. We have a copy of this report. No map was included that indicated where the soil samples were collected. There is a north and a south area, which I believe is located on section 7 and the east ½ of section 18.

Hecla submitted a Request for License Amendment SUA-1482, Docket No. 40-8914 to NRC dated May 4, 1990. In this request Hecla has received permission to use the former haul road on the west ½ section from the (b) (6) and permission from Quivira Mining Company to dispose of the uranium mill tailings and uranium ore to the Ambrosia Lake Facility.

Memorandum For: Docket File No. 40-8914 Review of Reclamation Plan for Hecla Mining Company's Johnny M Mine dated October 10, 1990

The reclamation of the north area will address 2 acres by removing 36 inches of tailings and tailings contaminated soil. This area was contaminated by back filling of an existing vent hole under agreement with the State of New Mexico. (We do not have a copy of a map outlining this area.)The soil was sampled in areas nearby and it was determined to be ore and not tailings.

The south area reclamation involves the removal of up to 36 inches of tailings and tailings contaminated soils over an approximately six (6) acre area. The south area contamination ends abruptly at the fence/property line along the west side of the figure at a depth of 18 inches. The licensee was contacted and to the best of their knowledge the tailings do stop at this line.

In a letter written by Hecla to the NRC dated October 9, 1991

This letter was written in response to a letter written by NRC to Hecla dated August 16, 1991.(We do not have a copy of this letter.) There are wells closer to the Johnny M site; however the agencies contacted indicate that these well are located in overlying aquifers, above the Morrison Formation. They are located at the (b) (6) about 1 ½ miles from the Johnny M and the Lee Ranch about three miles away. The water is used for irrigation and stockwater. **(What about the (b) (6) well that produces from the Dakota Sandstone, which is located 0.3 miles southwest of the Johnny M Mine? The MCL has been exceeded for gross alpha and for Radium 226)**

In conclusion , we believe that we have answered the questions posed in your August 16, 1991, letter. Studies conducted on the impact of backfilled uranium tailings on the groundwater indicate no long-term adverse effects. Additionally, the Johnny M Mine is located in a remote area where the predominant activity is uranium mining.

Letter written by Hecla to the NRC dated March 3, 1992 in regards to the License SUA-1482, Johnny M Site, August 16, 1991, NRC Letter.

"It is estimated that it will take the groundwater currently infiltrating the old workings approximately 450 years to travel one mile northeast of the mine where there are no identified consumptive uses of the Westwater Canyon aquifer water. "

Letter by Hecla to NRC in regards to License SUA-1482, Johnny M Site Reclamation dated May 29, 1992.

The NRC identified an area west of the fence in the south area as needing additional cleanup. Additional cleanup was conducted in this area on April 30, 1992. The area was cleaned up until all of the area was below 20 uR/hr. Approximately 75 cubic yards were removed and transported to Quivera Mining Company for disposal.

Then a letter was written by NRC to Hecla dated May 24, 1993, stating that based upon NRC's assessment of your Environmental Report and verification that the surface reclamation efforts had been successful, it was determined that the proper action was to issue a finding of no significant impact in the

Federal Register. A final finding of no significant impact was published in the Federal Register (58 FR 29641) on May 21, 1993.

In conclusion, it appears that NMEID and NRC focused on cleaning a very small area in the north area and a small area on the south area. These are the areas that received the uranium mill tailings that were slurryied into the two vent holes. No regard to potential future use of the Dakota Sandstone ground water was even considered. It also appears that the west ½ section 18, was contaminated by storage of mill tailings or uranium ore by Ranchers/Hecla. (This is evidenced by aerial photos that we have.)(b) (6) property)